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8

                    UNITED STATES DISTRICT COURT
9
                   NORTHERN DISTRICT OF CALIFORNIA
10
                      SAN FRANCISCO DIVISION
11

12 3COM CORPORATION, | Case No. CV-03-2177-VRW

                        Plaintiff,
13
                                           | **REALTEK'S NOTICE OF MOTION AND**
        v. | **MOTION FOR SUMMARY JUDGMENT**
14 | **OF NON-INFRINGEMENT OF U.S.**
    D-LINK SYSTEMS, INC. | **PATENT NO. 5,307,459**
15
        and | Judge: Vaughn R. Walker
16 | Date: December 20, 2007
    REALTEK SEMICONDUCTOR CORP., | Time: 2:30 p.m.
17 | Courtroom: 6, 17th Floor
                        Defendants.
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TABLE OF CONTENTS

1

TABLE OF AUTHORITIES

2

CASES

23

STATUTES

24

27

28

1

NOTICE OF MOTION AND MOTION

2   TO PLAINTIFF AND ITS ATTORNEYS OF RECORD:

3   PLEASE TAKE NOTICE that on December 20, 2007 at 2:30 p.m. in Courtroom 6 of this Court

4   located at 450 Golden Gate Avenue, San Francisco, CA, or as soon thereafter as the matter may be

5   heard, Defendant Realtek Semiconductor Corporation ("Realtek") will and hereby does move this

6   Court for summary judgment of non-infringement of asserted claim 1 of United States Patent No.

7   5,307,459 ("the '459 Patent") pursuant to Rule 56 of the Federal Rules of Civil Procedure.

8   This motion is based upon this Notice of Motion and Memorandum of Points and Authorities,

9   the supporting declarations of Jen-Che Tsai ("Tsai Decl."), Izhak Rubin, Ph.D. ("Rubin Decl.") and

10 S.H. Michael Kim ("Kim Decl."), the other papers and pleadings on file, and on such other argument

11 and evidence as may be presented to the Court at or prior to the hearing on this motion.

12

MEMORANDUM OF POINTS AND AUTHORITIES

13 **I.   INTRODUCTION**

14   Among its claims in this action, 3Com alleges that Realtek's accused network interface

15 controller chips infringe claim 1 of its '459 patent. The outcome of this allegation rests in part on the

16 claim limitation "comparison means for . . . generating an indication signal ***to the host.***" The Court has

17 construed "indication signal" to mean a signal that "indicates a subsequent interrupt." No such signal

18 is generated to the host in the Realtek products. To prevail on this allegation, 3Com would have the

19 Court ignore the "to the host" limitation, arguing either that the claim can be satisfied by a signal

20 internal to the Realtek chips and never sent "to the host." In the alternative, 3Com identifies a signal to

21 the host, but that signal is not an indication signal. Because neither argument is consistent with the

22 claim language, there is simply no evidence that Realtek infringes the '459 patent and Realtek is

23 entitled to summary judgment on this claim.[1]

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25

26   [1] Of course, even if the indication signal need not be sent to the host, and the signal then sent to
the host need not be an indication signal, 3Com's infringement claims would still fail. There are
numerous other differences between the claim and the accused products. In addition, as set out in

27 Realtek's Motion in the Alternative for Summary Judgment of Invalidity of Claim 1 of the '459 patent,
filed herewith, under 3Com's creative construction claim 1 is invalid in light of the earlier invention

28 and offer for sale by Advanced Micro Devices, Inc.

1   II.   **STATEMENT OF FACTS**

2   As the Court is aware, this case concerns the technology used in network adapters, also known

3   as Network Interface Cards, or NICs. *See* Rubin Decl., Ex. 3 at 6. NICs handle the tasks associated

4   with the transfer of data between a host computing system, such as a personal computer, and a data

5   communications network, typically a local area network (LAN) such as an Ethernet standard network.

6   Rubin Decl., Ex. 2. Data sent across such a network is organized in individual "packets" or "frames"

7   sent sequentially one at a time. To transmit data over the network, the host system, through the CPU,

8   composes frames or packets of data of a compliant format and size. The host system then sends data

9   frames to the NIC. *Id.* The NIC temporarily stores the data frames and then sends them out to the

10   network. *Id*. at 35-54. The NIC also receives data frames from the network and temporarily stores

11   them before forwarding them to the host system's memory. Thus, a NIC works with the host system's

12   operating system and central processing unit (CPU) to control the flow of data to and from the

13   network.

14   A.   **The '459 Patent**

15   3Com's '459 patent discloses and claims a particular aspect of NIC design meant to increase

16   the speed at which data is passed between the host and the network. Typically, whenever a NIC

17   successfully receives or transmits a data packet, it informs the host system through an "interrupt."

18   Rubin Decl., Ex. 2 at 1:45-51. To respond to an interrupt, the host system must determine the source

19   of the interrupt and the action it must then take. Before it can do so, it must save its current

20   environment or system parameters. *Id*. at 1:51-62. There is interrupt latency (idle time) between when

21   the network interface issues an interrupt indicating a complete data transfer and when the host system

22   is able to service that interrupt and send or receive the next frame. *Id*. at 1:63-66. The '459 invention

23   attempts to reduce interrupt latency by using an early indication signal to tell the host system to begin

24   saving its current environment and parameters before the network adapter is finished receiving or

25   sending the entire data packet. *Id.* at 2:23-27.

26   The alleged invention in claim 1 of the '459 patent uses "indication signals" to inform the host

27   processor that a threshold amount of data has been transferred, in advance of a subsequent interrupt

28   signal. *Id.* at 2:22-27; 3:8-14. In particular, the NIC generates an early indication signal when the

1   amount of data in the NIC's buffer memory exceeds a threshold value stored in an alterable storage

2   location. *Id.* at 2:46-54. As the Court has construed that term, an "indication signal" is a "signal that

3   indicates a subsequent interrupt." Rubin Decl., Ex. 3 at 18. The "indication signal" may itself be an

4   interrupt, *id.* at 17, but it must also be followed by a second, subsequent interrupt. The patent discloses

5   two methods of using the "indication signal." In the first instance, the indication signal is generated

6   directly to the host:

> The present invention provides for optimized indication signals to the host
> processor by a network adapter of the completion of a transfer of a data
> frame. . . The apparatus ***generates an indication signal to the host
> processor*** responsive to the transfer of a data frame. ***The host processor
> responds to the indication signal*** after a period of time. . .The indication
> signal to the host is generated based upon the comparison of the counter
> and the threshold value in the alterable storage location.

12 Rubin Decl., Ex. 2 at 2:35-54 (emphasis added). The '459 patent also discloses a second, indirect

13 method of using the indication signal. In that embodiment, the indication signal is sent not to the host,

14 but rather to the host interface logic within the network adaptor. In response to the indication signal,

15 the host interface logic issues an early interrupt to the host. By sending the interrupt early, the network

16 adaptor allows the host to save its current environment and prepare to service the interrupt while the

17 remainder of the data transfer is completed.

> According to another aspect of the present invention, the network interface
> logic includes control means for generating an interrupt signal to the host
> signal responsive to the indication signal.

20 *Id.* at 3:8-11.

21   The inventors clearly understood these two methods to be different, and they claimed them as

22 distinct inventions. Asserted claim 1, at issue here, claims an apparatus according to the first

23 embodiment, wherein the "indication signal" is sent directly to the host. Claim 1 includes the

24 limitation of a threshold logic including a

> means for comparing the counter to the threshold value in the alterable
> storage location and ***generating an indication signal to the host processor***
> responsive to a comparison of the counter and the alterable storage
> location.

1   *Id.* at 42:64-68 (emphasis added). On the other hand, dependent claim 5 and independent claim 22,

2   neither of which is at issue here, claim an apparatus where the indication signal is sent to the host

3   interface logic, and the host interface logic in turn "generates an ***interrupt signal to the host***

4   ***processor*." *Id.* at 44:46-49 (emphasis added). As the patent makes clear in claim 1, the threshold

5   logic sends an indication signal directly to the host. In other claims, the threshold logic sends that

6   signal to the host interface logic, which generates an interrupt to the host.

7   **B.**   **Realtek's Accused Products**

8   The Realtek accused products are integrated circuit chips which implement the primary

9   functions of a NIC. Rubin Decl., ¶ 8. 3Com alleges that Realtek's "RTL8139 and Related Products"

10 and "RTL8169 and Related Products" infringe claim 1 of the '459 patent. Kim Decl., Ex. A at 7; Ex. B

11 at 3. This allegation encompasses all of the Realtek products at issue in this case. 3Com's contentions

12 assume that all of the accused Realtek products operate in the same manner for purposes of

13 infringement of the '459 patent. Kim Decl., Ex. A at 3. That assumption is simply false. First, many

14 of the accused products simply do not include or implement the claimed early interrupt feature at all.

15 Tsai Decl., ¶ 6; Rubin Decl., ¶ 12. At least the RTL8110SC(L), RTL8100E and RTL8101E products

16 are not capable of comparing bytes received by the buffer memory to any threshold nor generate any

17 indication signal as a result of any such comparison. *Id*. As such, 3Com can prove no set of facts that

18 would support a finding that those products infringe the '459 patent.

19   Similarly, the 8169 series products never send an early interrupt signal to the host. There is no

20 comparison of bytes transferred into the buffer in the transmit mode to any threshold and these

21 products do not provide any indication signal in advance of the interrupt generated when the entire

22 packet is received into the buffer. Tsai Decl., ¶ 5; Rubin Decl., ¶ 12. For receive operations, circuitry

23 exists in the 8169 products to compare the number of PCI memory cycles executed while transferring

24 data from the FIFO to the host to an estimate of the number of cycles that are expected to elapse while

25 transferring a given fraction of the packet. Tsai Decl., ¶ 6; Rubin Decl., ¶ 17. However, that circuitry

26 is never enabled for operation in network adapters using these Realtek products. Tsai Decl., ¶ 15. That

27 is because Realtek ships controller software that does not enable this function. *Id*. While that circuitry

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1   cannot be used in Realtek's 8169 series products, if enabled it would operate in the same way as the

2   8139 products discussed below.

3   Thus, the only Realtek chips rightly at issue here are the 8139 series and related products. The

4   Realtek 8139 series products include registers that store a receive threshold value. That value is

5   expressed as number of PCI bus cycles. Tsai Decl., ¶ 9; Rubin Decl., ¶ 16-17. When data received

6   from the network is transferred to the host, the number of PCI bus cycles is counted and, when that

7   count reaches the threshold value, the counter generates an "EROK," or "Early Receive OK" signal.[2]

8   That signal sets a status bit within the Realtek controller chip. Tsai Decl., ¶¶ 9-10; Rubin Decl., ¶ 13.

9   In response to the EROK status bit, the Realtek products generate the ROK, or "Receive OK,"

10   interrupt to the host. Tsai Decl., ¶¶ 9-10; Rubin Decl., ¶ 14. No subsequent interrupt is sent to the host

11   after the ROK signal. *Id.* In no instance does the circuit that compares the number of PCI bus cycles

12   generate any signal to the host, and in no instance does the Realtek product generate an indication

13   signal to the host that "indicates a subsequent interrupt." *Id.* Rather, the accused Realtek products

14   send one and only one interrupt signal – ROK. Tsai Decl., ¶¶ 9-15; Rubin Decl., ¶ 14.

15   **III.   ARGUMENT**

16   **A.   Legal Standard**

17   Summary judgment is appropriate when there is no genuine dispute of material fact. *Irdeto*

18   *Access, Inc. v. Echostar Satellite Corp*., 383 F.3d 1295, 1299 (Fed. Cir. 2004), quoting *Bai v. L & L*

19   *Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998). Once one party moves for summary judgment and

20   supports its motion with admissible evidence, the non-moving party must set forth specific facts

21   showing that there is a genuine issue for trial. Fed. R. Civ. P. 56(e). "A nonmovant must do more than

22   merely raise some doubt as to the existence of a fact" and must set forth enough evidence to enable a

23   jury to reasonably find for the nonmoving party. *Avia Group Int'l, Inc. v. L.A. Gear California, Inc.*,

24   853 F.2d 1557, 1560 (Fed. Cir. 1988); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 249-50 (1986).

25

26   _____
       [2] There are two different threshold values that can be used in certain Realtek products. In one
     instance, the threshold value is set as a fraction of the number of bus cycles estimated as necessary to
27   transfer the entire packet. This variable is stored in the "ERTH3,2,1,0." Tsai Decl., ¶ 9. In the other
     instance, a fixed threshold valued can be set in the MISR[11,0] register. *Id.*, ¶ 10. These distinctions
28   are not material for purposes of this motion because, regardless of the manner used to choose the PCI
     cycle threshold, the same circuitry is used to generate the "receive OK" or ROK interrupt.

1   When the nonmoving party fails to make a showing sufficient to establish evidence of an element

2   essential to its case, the complete failure of proof concerning the essential element necessarily renders

3   all other facts immaterial and a summary judgment is warranted. *Rotec Indus., Inc. v. Mitsubishi*

4   *Corp.*, 215 F.3d 1246, 1250 (Fed. Cir. 2000). Summary judgment is as appropriate in a patent case as

5   it is in any other case." *C.R. Bard Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 672 (Fed.

6   Cir. 1990); *see also Desper Prods., Inc. v. Qsound Labs, Inc.*, 157 F.3d 1325, 1332 (Fed. Cir. 1998).

7   Determining whether a product infringes a patent claim requires a two step analysis. First, the

8   court construes the asserted claim and, second, the court compares the properly construed claim to the

9   accused products. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (*en banc*);

10 *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 988 (Fed. Cir. 1999). Literal

11 infringement is found only if each and every limitation of the claim is present in the accused products,

12 either literally or under the doctrine of equivalents. *See, e.g., Deering Precision Instruments, LLC v.*

13 *Vector Distrib. Sys., Inc.*, 347 F.3d 1314, 1324 (Fed. Cir. 2003). The patentee bears the burden of

14 proving infringement by a preponderance of the evidence. *Laitram Corp. v. Rexnord, Inc.,* 939 F.2d

15 1533, 1535 (Fed. Cir. 1991); *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*, 204 F.3d 1360, 1364

16 (Fed. Cir. 2000).

17   The claim element at issue here is in "means-plus-function" form. The Court earlier resolved

18 the parties' dispute and found that the entire "means for comparing" limitation at issue here, including

19 the "generating an indication signal to the host" limitation is subject to the requirements of 35 U.S.C.

20 § 112 ¶ 6. Rubin Decl., Ex. 3 at 18-19. In order to meet its burden of proof, 3Com must demonstrate

21 that there is some structure in the Realtek Products that literally performs the function recited in the

22 claim limitation, and that it does so using the identical or equivalent circuit structure disclosed in the

23 patent specification as performing that function. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314,

24 1328 (Fed. Cir. 2003).

25   Here, 3Com cannot meet its burden with respect to claim 1 of the '459 patent. There is no

26 dispute regarding the relevant operation of the accused Realtek products. The undisputed evidence

27 demonstrates that those products do not include any circuitry that performs the function of "generating

28 an indication signal to the host processor" as the claim requires. In addition, although discovery in this

1   matter is closed, 3Com has never identified *any* specific structure in the accused Realtek product as

2   identical or equivalent to the structure in the '459 patent. For that matter, 3Com has never identified

3   the structure in the patent it contends performs the claimed function. While all of these are grounds on

4   which summary judgment should be granted. Realtek's failure to perform the claimed function alone

5   is fatal to 3Com's case.

6
        B.   The Accused Realtek Products Do Not Perform the Function of "Generating an
7   **Indication Signal to the Host Processor" as Required by Claim 1.**

8   1.   Claim 1 Requires that the "Indication Signal" be Sent Directly to the Host.

9   It has become clear that 3Com's infringement positions is essentially a claim construction

10 position. There is no dispute that no Realtek product sends an "indication signal" directly to the host.

11 Thus only if claim 1 is construed not to have that requirement can 3Com prevail. At issue here is the

12 last element of claim 1, which reads:

13   means for comparing the counter to the threshold value in the alterable
            storage location and generating an indication signal to the host processor
14   responsive to a comparison of the counter and the alterable storage
            location.
15

16 Rubin Decl., Ex. 2 at 42:64-68.   Construction of a "means-plus-function" element entails two steps.

17 First, the claimed function must be identified. Then the court must determine what structure in the

18 specification as particularly associated with that function. *Medtronic, Inc. v. Advanced Cardiovascular*

19 *Sys., Inc.*, 248 F.3d 1303 (Fed. Cir. 2001). The recited function is to: 1) compare the value in the

20 counter (showing the amount of data transferred to buffer memory) to the pre-stored threshold value;

21 and 2) generate an indication signal to the host processor.

22   3Com bases its entire infringement position on the novel assertion that the claim language

23 "generating an indication signal *to the host processor*" does not require that the indication signal

24 actually be sent to the host processor. To state that argument is to demonstrate its absurdity. While the

25 parties disputed various aspects of the claim limitation during the claim construction process, the

26 phrase "generating . . . to the host processor" was not at issue. Resolving the parties' other disputes,

27 the Court construed "indication signal" to mean "a signal that indicates a subsequent interrupt." Rubin

28

1   Decl., Ex. 3 at 18. It also determined that the 35 U.S.C. § 112 ¶ 6 applied to the entire "means for

2   comparing . . ." element in which the "indication signal" limitation is found. *Id.* at 19.

3   The phrase "generating an indication signal to the host processor" is clear on its face. In the

4   context of claim 1, the "means for comparing" must create the indication signal, and the indication

5   signal must be sent to the host. A review of the patent specification reinforces this plain language. The

6   patentee used the phrase "generated to the host processor" repeatedly in the specification. Each time

7   the patentee clearly means a signal sent to the host processor on which the processor will act. Among

8   the types of signals described as "generated to the host" are interrupts. For example, the patent

9   discusses the prior art systems where "an interrupt is generated by the network adapter to the host

10   processor on the completion of a data transfer." Rubin Decl., Ex. 2 at 1:49-51. The patent also

11   discusses a control means for "generating an interrupt signal to the host processor." *Id.* at 3:9-11 and

12   3:26-28. By definition an interrupt is a signal sent to the processor. In another aspect of the alleged

13   invention, an "indication signal is generated <u>to the host processor</u>." On the other hand, where the

14   indication signal is <u>not</u> sent to the host, the specification makes that clear. It describes another aspect

15   of the invention as including a control means for "generating an interrupt signal to the host processor"

16   based on or in response to the indication signal. *Id.* at 3:8-11 and 3:25-28. In that case, the interrupt,

17   and not the indication signal, is generated, or sent, to the host.

18   As can be seen from a cursory review of the patent, the patent uses the phrase "generated to the

19   host" even to mean a signal sent to the host that is generated by the network adapter. The indication

20   signal maybe sent directly to the host. *Id.* at 2:35-36 ("the apparatus generates an indication signal to

21   the host") and 2:52-54 ("The indication signal to the host is generated . . ."). The indication signal

22   maybe used internally to generate an interrupt to the host. In either event, the patent always uses the

23   phrase "generated to the host" the mean a signal sent to and acted on by the host processor. That is the

24   meaning of that phrase as used in claim 1. As such, infringement requires that the means for

25   comparing send an indication signal directly to the host processor. Realtek's products do not. *Id*. at

26   41:41-48. "These early indications may be used to generate an early interrupt to the host processor

27   before the data frame is transferred . . ."

28

REALTEK'S MOTION FOR SUMMARY JUDGMENT   8
OF NON-INFRINGEMENT OF THE '459 PATENT   CV-03-2177-VRW

2.   The Realtek Products Do Not "Generate an Indication Signal to the Host Processor".

3Com cannot meet its burden of proving that the accused Realtek products infringe for the simple reason that there is no signal generated by those products that meets the claim requirement of "generating an indication signal to the host processor." As discussed above, this claim limitation requires, at a minimum, a signal that is a) sent to the host, and b) indicates a subsequent interrupt. No signal identified by 3Com meets these claim limitations. As such, it is evident that the accused Realtek products do not perform the function of "generating" any such signals.

In its Final Infringement Contentions, 3Com alleged, *inter alia*, that the TOK or "Transmit OK" interrupt as claimed "indication signal." Kim Decl., Ex. A at 21. That contention was echoed by 3Com's infringement expert. Kim Decl., Ex. 2 at 12. That contention is based on a complete failure to understand the operation of Realtek's accused products. None of the accused products issue an interrupt or any other signal based on any threshold amount of data received into the transmit FIFO. Rather, in some products the TOK interrupt is generated only after complete packets are received. In others, TOK is generated only after a complete packet is transmitted to the network medium. Tsai Decl., ¶ 5. As such, the accused products are wholly missing the "means for comparing…and generating an indication signal to the host" element on the transmit side. *Id.*, Rubin Decl., ¶ 12. That element is also not met by the circuity for receiving data from the network.

3Com also points to the creation of the "EROK" signal in certain of the accused Realtek products as satisfying the "generating an indication signal to the host." Kim Decl., Ex. A at 20-21; Ex. 2 at 11. However, as 3Com's expert recognizes, the EROK signal is not sent to the host. Kim Decl., Ex. C at 74:24-75:25. As such, it can not be the indication signal required by the claim. 3Com appears to argue that, because the EROK bit in the Realtek controller can be read by the controller, somehow this satisfies "generating an indication signal." That is simply wishful thinking. Setting a bit that theoretically could be read by the host processor, but in fact never is read by the host processor, is not generating a signal to the host processor. 3Com's expert admits that the host processor would not be able to read that bit until *after* it is interrupted. *Id*. at 81:14-21, 8:13-25. As such, even if setting that bit could be considered generating a signal, that bit is incapable of "heralding the arrival" of a

1   **subsequent** interrupt. Rather it is not until the interrupt is received that the host is aware of EROK

2   bits. As such, it is not an indication signal. Nor can 3Com include the generation of the ROK interrupt

3   as part of the "means for generating an indication signal.' While the ROK interrupt is indeed generated

4   to the host processor, it does not indicate a ***subsequent interrupt***. There is no interrupt that follows

5   ROK. Rubin Decl., ¶ 15. Because there is no subsequent interrupt to indicate, the ROK can not be an

6   'indication signal" as required by claim 1.

7   **IV.   CONCLUSION**

8   Because 3Com cannot identify any "indication signal" that is "generated to the host processor"

9   as required by claim 1, there can be no infringement. For this reason, the Court should grant Realtek's

10 Motion for Summary Judgment that Realtek's accused products do not infringe Claim 1 of the '459

11 patent.

12

13 Dated: November 16, 2007   AKIN GUMP STRAUSS HAUER & FELD LLP

14   By:_____/s/_____
                                                              Elizabeth H. Rader

15   Attorneys For Defendant
                                                 REALTEK SEMICONDUCTOR CORPORATION

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